FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

October 13 to 19, 2013 (Week 42)

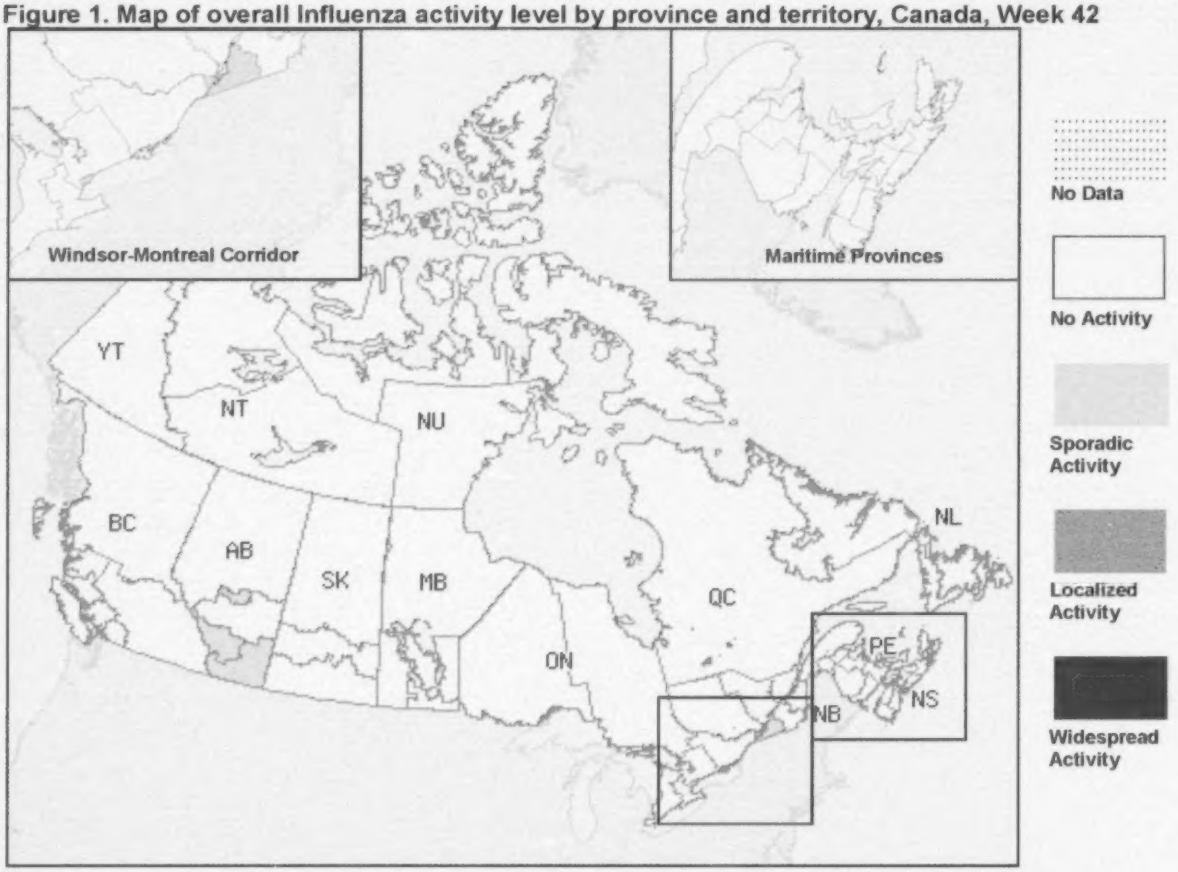
Overall Summary

- Influenza activity in Canada remained at inter-seasonal levels in week 42.
- Few laboratory detections of influenza have been reported to date this season; rhinovirus and parainfluenza were the predominant respiratory viruses in circulation in week 42.
- The ILI consultation rate has followed a gradual upward trend over the past five weeks.

Influenza Activity (geographic spread) and Outbreaks

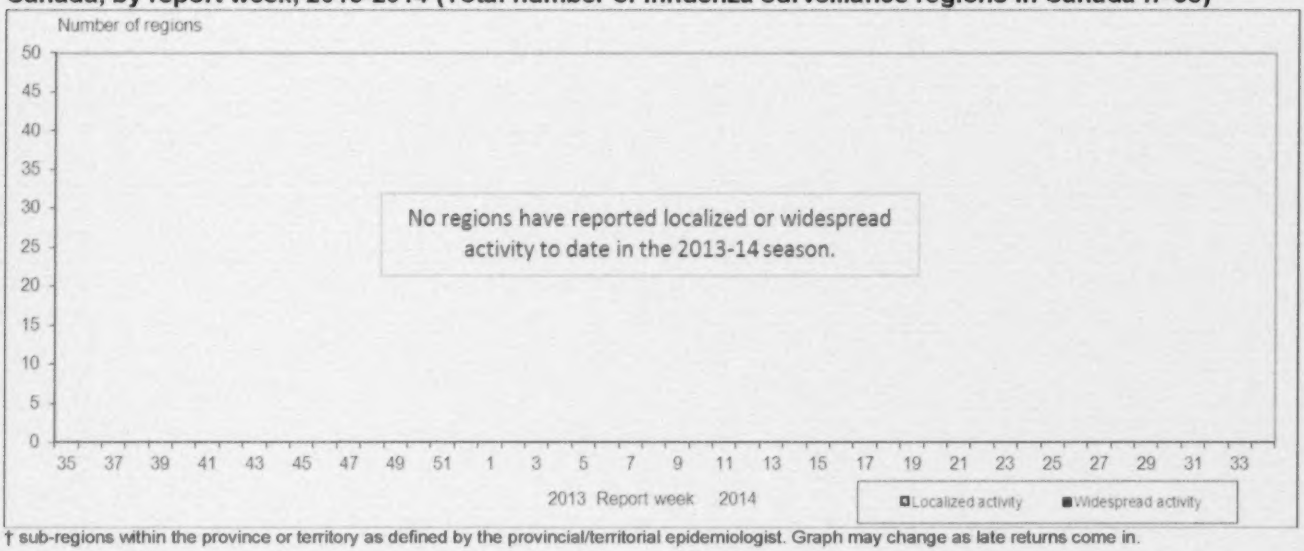
In week 42, five regions (in AB(3), ON and QC) reported sporadic activity (Figure 1). Localized activity has not been reported since week 26 of the 2012-13 season (Figure 2). No new influenza outbreaks were reported in week 42. (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 42



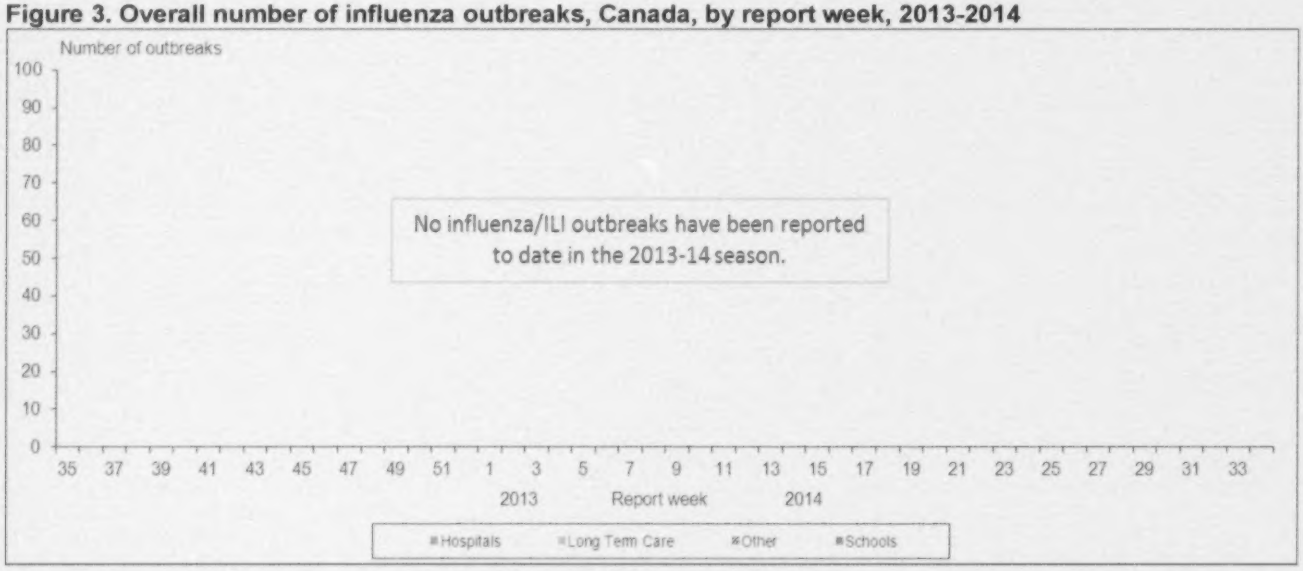
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2013-2014 (Total number of influenza surveillance regions in Canada n=58)


Number of regions
No regions have reported localized or widespread activity to date in the 2013-14 season.
2013 Report week 2014
Localized activity
Widespread activity

† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2013-2014



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests was low and stable, at 0.2% in week 42. Among the three influenza viruses detected in week 42, all were influenza A (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 78% influenza A [14% A(H3), 39% A(H1N1)pdm09 and 46% A(unsubtyped)] and 22% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 29 cases to date this season (Table 2). The proportion of cases by age group is as follows: 20.7% <5 years; 0% between 5-19 years; 17.2% between 20-44 years; 44.8% between 45-64 years; and 17.2% ≥65 years of age.

The percentage of positive tests for rhinovirus was similar to week 41, at 31.0% in week 42. The percentage of positive tests for parainfluenza increased slightly from 4.1% in week 41 to 5.5% in week 42. The percentages of positive tests for other respiratory viruses were low in week 42: human metapneumovirus (hMPV) (0.1%), respiratory syncytial virus (RSV) (0.6%), coronavirus (0.6%) and adenovirus (1.7%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2013-2014

Reporting provinces	Weekly (October 13 to October 19, 2013)						Cumulative (August 25, 2013 to October 19, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	0	0	0	0	0	0	3
AB	1	0	0	0	1	0	9	0	1	7	1	2
SK	0	0	0	0	0	0	2	0	0	0	2	0
MB	0	0	0	0	0	0	0	0	0	0	0	0
ON	1	0	0	0	1	0	9	0	3	3	3	3
QC	1	0	0	0	1	0	7	0	0	0	7	0
NB	0	0	0	0	0	0	1	0	0	1	0	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0
Canada	**3**	**0**	**0**	**0**	**3**	**0**	**28**	**0**	**4**	**11**	**13**	**8**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2013-2014*

Age groups	Weekly (October 13 to October 19, 2013)					Cumulative (August 25, 2013 to October 19, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	1	0	0	1	0	6	1	2	3	0
5-19	0	0	0	0	0	0	0	0	0	0
20-44	0	0	0	0	0	4	1	1	2	1
45-64	0	0	0	0	0	10	8	0	2	3
65+	1	0	0	1	0	3	0	1	2	2
Unknown	0	0	0	0	0	0	0	0	0	0
Total	**2**	**0**	**0**	**2**	**0**	**23**	**10**	**4**	**9**	**6**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive by report week, Canada, 2013-14

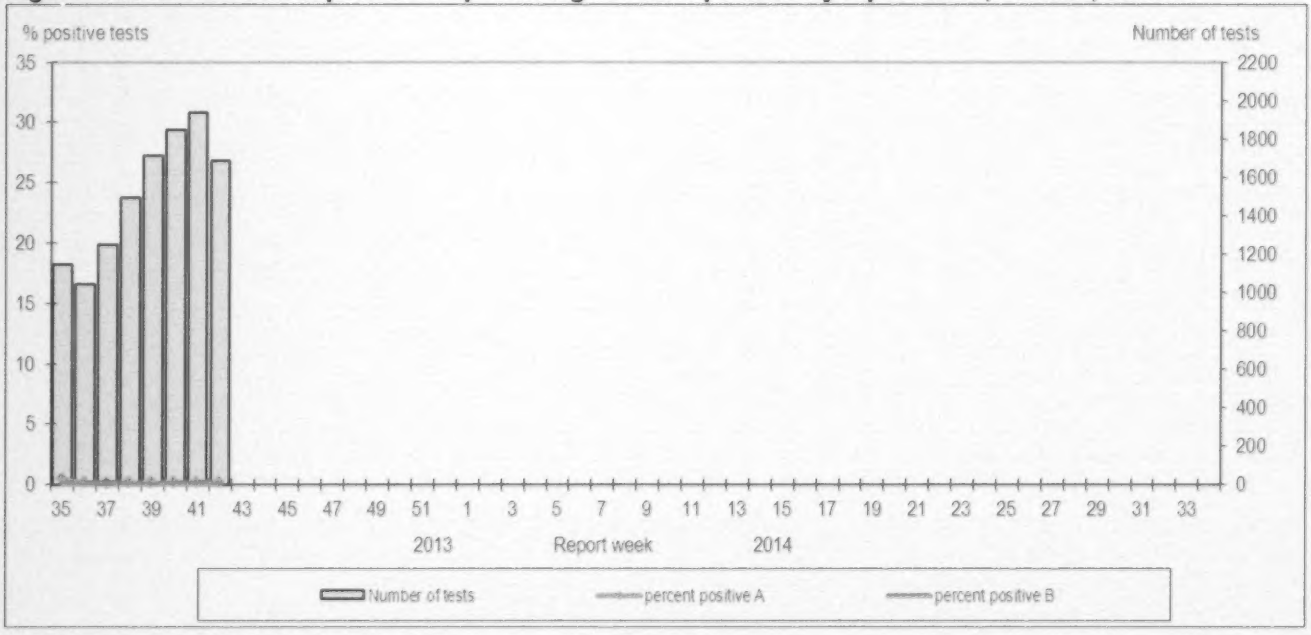
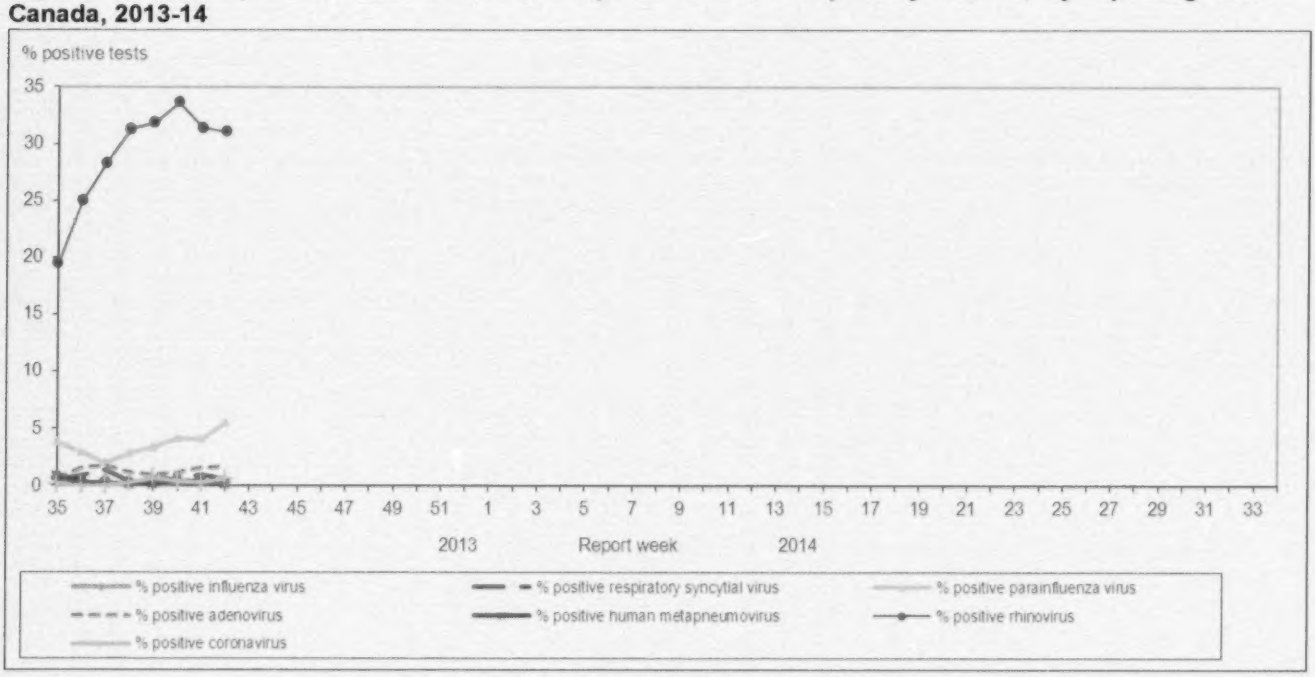


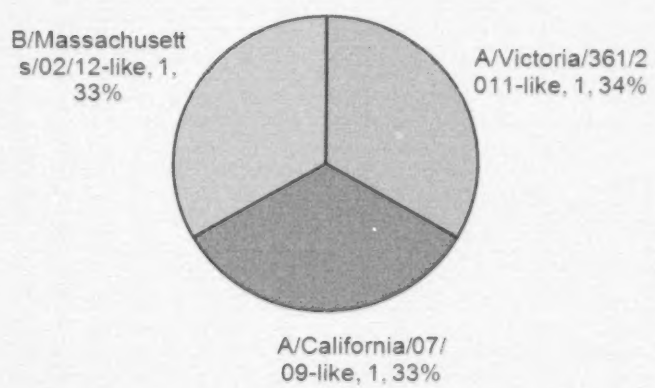
Figure 5. Percent positive influenza tests compared to other respiratory viruses, by reporting week Canada, 2013-14



Influenza Strain Characterizations

During the 2013-2014 influenza season, the National Microbiology Laboratory (NML) has antigenically characterized three influenza viruses [one A(H3N2), one A(H1N1)pdm09 and one influenza B]. All viruses were similar to the strains recommended by the WHO for the 2013-14 seasonal influenza vaccine (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2013-2014, N = 3



Note: The WHO-recommended components for the 2013-2014 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009 (H1N1)pdm09-like virus, an A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011b, and a B/Massachusetts/2/2012-like virus.

Antiviral Resistance

During the 2013-2014 influenza season, NML has tested three influenza viruses for resistance to oseltamivir and zanamivir, and all were sensitive. Two influenza A viruses were tested for amantadine resistance, and both were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2013-2014

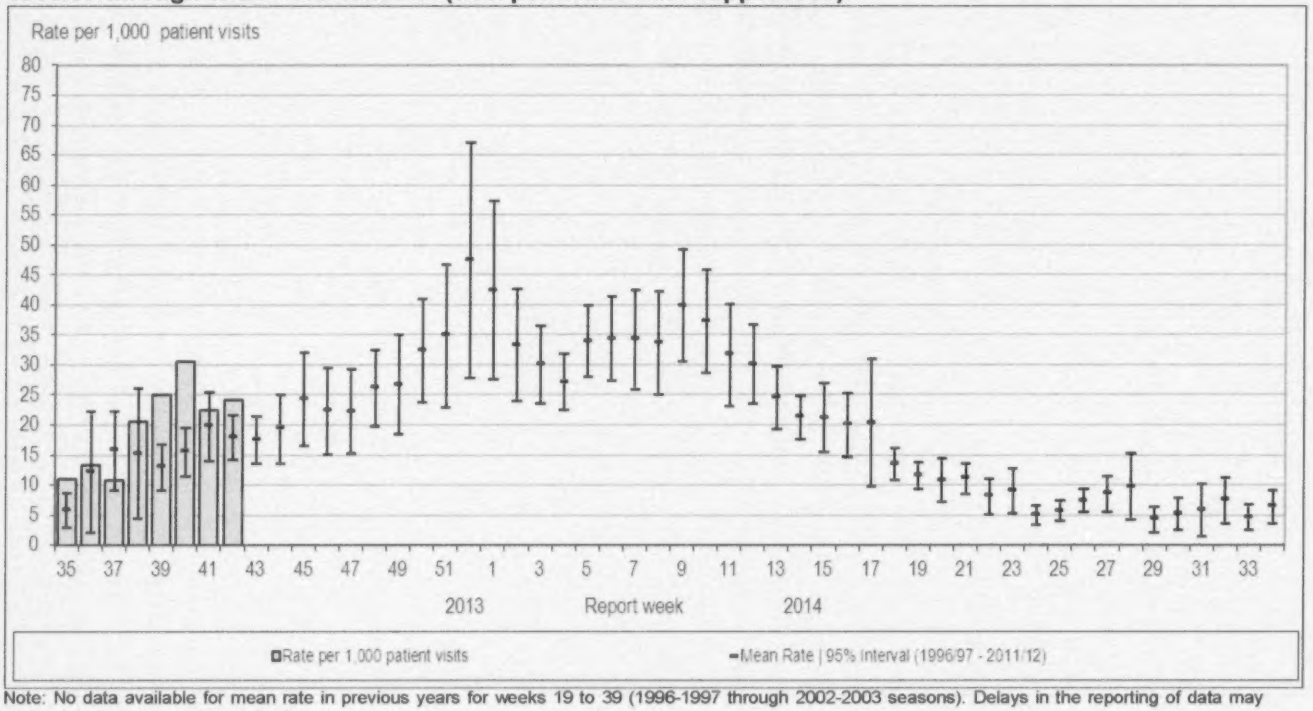
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	1	0	1	0	1	1 (100%)
A (H1N1)	1	0	1	0	1	1 (100%)
B	1	0	1	0	NA*	NA*
TOTAL	3	0	3	0	2	2 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased slightly from 22.4/1,000 in week 41 to 24.2/1,000 in week 42 (Figure 7).

Figure 7. Influenza-like illness (ILI) consultation rates by report week, Canada, 2013-14, compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)
In week 42, one laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalization was reported by the Immunization Monitoring Program Active (IMPACT) network: a child 2-4 years of age with influenza A(unsubtyped).

To date this season, a total of two influenza-associated paediatric hospitalizations have been reported by the IMPACT network. The previous case was a child 2-4 years of age, hospitalized in week 41 with influenza B for whom ICU admission was required. No deaths have been reported.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)
Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. The PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance, and active surveillance will start again on November 15th, 2013. No hospitalizations, ICU admissions or deaths were reported in week 42.

To date this season, three influenza-associated adult hospitalizations have been reported by the PCIRN-SOS network, all with influenza A(unsubtyped). Two were 45-64 years of age, and one ≥65 years of age. ICU admission was required for one hospitalization and no deaths have been reported.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 42, one new laboratory-confirmed influenza-associated hospitalization was reported from participating provinces and territories.* The case was reported in a child 0-4 years of age with influenza A(unsubtyped). No ICU admissions or deaths were reported.

To date this season, seven influenza-associated hospitalizations have been reported. One case was reported in an adult ≥65 years of age, three cases were reported in adults 45-64 years of age, and three cases in children 0-4 years of age. Five (71%) cases had influenza A [one A(H3), two A(H1), and two A(unsubtyped)], and two (29%) had influenza B. One ICU admission was reported in an adult 45-64 years of age and no deaths have been reported.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

Northern Hemisphere
Influenza activity in temperate regions of the northern hemisphere was at inter-seasonal levels in week 41. In the United States, 89.0% of the 328 positive influenza specimens in weeks 39-41 were influenza A, with 30.8% of those A(H1N1)pdm09.
World Health Organization influenza update ***(#197)***
Centers for Disease Control and Prevention seasonal influenza report ***(wk41)***
EuroFlu weekly electronic bulletin ***(wk41)***

Tropical Regions
Asia & Africa: Influenza activity remained low in most countries in tropical Asia, with both influenza A subtypes circulating. In Hong Kong, China Special Administrative Region, decreasing ILI consultation rates and hospitalizations with influenza have been reported since early October. Countries in Southeast Asia reported low-level circulation of influenza.

Carribean, Central America & tropical South America: Influenza activity in Caribbean and Central America was at low levels in week 41. Following co-circulation of influenza A(H3N2) and A(H1N1)pdm09 this season, RSV is currently the predominant virus in Central America. In tropical South America, influenza activity continued to decrease, indicating the end of the 2013 season in this region. Co-circulation of influenza A(H1N1)pdm09 and influenza B was reported this season.

World Health Organization influenza update
PAHO Influenza Situation Report ***(wk41)***

Southern Hemisphere

The influenza season has come to an end in temperate countries of South America and South Africa. Activity in Oceania seems to have passed its peak.

South America – Southern Cone: Influenza and Acute Respiratory Infection activity were within the expected levels for this time of year in most countries. In both Argentina and Chile, influenza and respiratory virus detections continued to decline. In Paraguay, ILI activity was higher than expected for this time of year, with some continued circulation of influenza B.

South Africa: Circulation of A(H1N1)pdm09 was reported from April to July 2013, with a peak in laboratory detections in week 23. Influenza circulation in weeks 31-41 has shifted to a predominance of A(H3N2) and influenza B, but continues to decline.
South Africa Influenza surveillance report ***(wk34)***

Australia & New Zealand: The start of the 2013 influenza season was delayed in both Australia and New Zealand, and activity has been low compared to previous seasons. Both countries reported co-circulation of influenza A(H1N1)pdm09, A(H3N2) and influenza B.
In New Zealand, consultation rates for ILI peaked in week 37, but remained below the baseline level of activity. Consultation rates declined over the past 5 weeks. Laboratory detections of influenza followed the same trend, decreasing in weeks 38-42. Among the 2,140 influenza viruses identified between weeks 1 and 42, 40.9% were influenza B. Among the 852 subtyped influenza A viruses, 74.3% were A(H3N2).
In Australia, the influenza season peaked at the end of August with activity relatively low compared to the previous two seasons. Laboratory detections of influenza reported to WHO show a decreasing trend over weeks 40-42. Among the 21,319 influenza viruses identified between 1 January and 27 September 2013, 62% were influenza A. To date approximately 15% of all influenza detections have been A(H1N1)pdm09 in 2013 compared to <1% during the 2012 season.
New Zealand Public Health Surveillance ***(wk42)***
Australia Influenza Report ***(#08, wk38-39)***

World Health Organization influenza update
PAHO Influenza Situation Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): One new case of human infection with avian influenza A(H7N9) was reported by the World Health Organization (WHO) on 24 October 2013. The patient is a 67 year old male from Zhejiang Province, China, who was admitted to hospital on 18 October 2013 and is currently in critical condition. He is a farmer and was exposed to live poultry. As of 25 October 2013, WHO has been informed of 137 laboratory-confirmed human cases with avian influenza A(H7N9), including 45 deaths.
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Human Swine Influenza
Influenza A(H3N2)v: One new case of human infection with influenza A(H3N2)v was reported in week 41 in Iowa, United States. To date in 2013, a total of 21 A(H3N2)v cases have been reported, and one person has been hospitalized.
Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Since 18 October 2013, WHO has reported five additional cases, with two deaths, of MERS-CoV infection in Saudi Arabia. The patients range in age from 35 to 83 years old. Four are male and one is female. Four patients had underlying medical conditions, and two reported having no contact with a laboratory-confirmed case or with animals prior to becoming ill. As of 25 October 2013, 144 laboratory-confirmed cases of human infection with MERS-CoV have been reported, including 62 deaths. Most patients are male (64%, 87/137) and range in age from 2 to 94 years (median 58 years, n=138).
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2013-2014 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2013-2014 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.
Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.
Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.
Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2013-2014 season

Influenza Regional Activity levels are defined as:
1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**
4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**
Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.
* More than just sporadic as determined by the provincial/territorial epidemiologist.
† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.
This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.